Through the Breach:

A Tanker Searches for a Common Perspective

by Captain Jeffrey Erdley

> *"Operation Desert Storm showed that our World War II-vintage minefield breaching and clearing capability, coupled with the lack of demolition expertise, resulted in an inability to technically or tactically breach the modern minefields that we faced."*
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> *- Operation Desert Shield/Desert Storm Engineer Observations*

Quotes such as this may stir emotions of disbelief in some U.S. forces because all of the breaches during Desert Storm were successful. It is important to note, however, that the majority of our forces (except the Marine divisions and a brigade of the 2AD) maneuvered far to the west of the main defenses. In every case, the Iraqi resistance proved vastly weaker than predicted — a fact that thankfully negated the 80 percent casualties predicted for U.S. breaching forces. I served as an acting engineer platoon leader with B/23d Engineers (1st Armored Division) for a CMTC Hohenfels rotation, and conducted well over 100 breaches as a tank platoon leader, executive officer, and acting commander of armor-heavy teams. I've been fortunate to have had both tanker and engineer viewpoints through both field training in local training areas and CTCs, and formal schooling both at Fort Knox and Fort Leonard Wood. Through my experience, one fact has proven itself over and over — the maneuver arms and engineers lack a common understanding of breaching and only work together when forced upon each other for a breach. *FM 90-13-1, Combined Arms Breaching Operations*, lays the framework for a common vision; however, in the field, the principles of this manual are not always followed nor understood.

The Doctrine

Armor and engineer units in the field often proclaim that their branch can "do it alone" as both types of units possess the necessary equipment to create a lane through an obstacle. While engineers are experts at explosive and manual operations, the tanks control the plows and rollers for mechanical reduction. Each branch also practices reducing smaller, easily constructed obstacles on our own. This is not necessarily a bad thing, since the speed and momentum of maneuver forces require that we breach quickly without waiting for engineer support to come forward. *FM 71-2, Tank/Mech Infantry Battalion/Task Force*, states, "*Combat engineers are located with the breaching force of the battalion to perform hasty breaches. However, time and distance factors may require hasty breach by maneuver units without direct engineer participation*." Likewise, engineers are often thrust forward of both light and mech units and told to reduce obstacles with little more than direct fire support. The disjointed manuals may be corrected with future versions of *FM 71-2*, as the engineers don't even use the term "hasty," and the new *FM 90-13-1* will eliminate each distinct operation (deliberate, in-stride, etc.) and designate them all simply as "a breach." Therefore, in my experience, we often view each other as adversaries getting in the way of the mission. It is important to realize that creating a lane through an obstacle is not conducting a breach, but rather just one small part of the operation. A breach is a combined arms operation involving not only engineers and tankers, but every BOS element. Somewhere in the middle of the engineer and armor high grounds is the truth about the most effective way to work together in breaching an obstacle and continuing the attack. This is where task force and brigade combat team rehearsals and training become essential — before deploying to the field. It is imperative to develop a cohesive plan for breaching operations as early as possible and to bring all participating elements together to orchestrate this complex operation.

Through refinement, the breach plan can be developed and captured in the unit's SOP as an effective reference for both maneuver and support units.

Current doctrine provides little insight as to what this effective middle ground is. Most of the armor manuals reserve a few pages to roller and plow operations and

simply state that for larger obstacles we will get support from the engineers. The engineer manuals are no less guilty as the obstacle reduction capability of tanks is viewed as an afterthought, mainly for proofing. Even the doctrinal bible on breaching operations, *FM 90-13-1*, barely mentions tank breaching, saying that tank plows and rollers may be used in the breach. *FM 20-32, Mine/Countermine Operations,* dedicates only a single page each to the plow and roller. We shouldn't forget that the introduction of British tanks in World War I opened the wire and trenches in France to help end the stalemate. Since there is no effective manual on the tactical employment of either the plow or the roller, tankers must discover the tactics, techniques, and procedures on our own for unit SOPs and operations. To spur some ideas and raise awareness, I'll offer some personal observations on identifying obstacles, ways to maneuver to them, notes on the equipment, and techniques in the breach that proved successful in the field.

As with any successful combat operation, a successful breach begins with accurate reconnaissance. Through trial and error, we learned that the most effective method of locating obstacles, bypasses, and breach locations was to put engineers in scout vehicles overwatching NAIs to gather obstacle intelligence. The armor battalion's scouts know the task force or brigade combat team commander's intent, and have the "maneuver view" of how to conduct the operation. But no one has more knowledge of obstacle composition, dimension, and purpose than the engineer. With the two together in one vehicle, they formed an efficient team to locate the obstacles, locate and mark the bypasses, create lanes, and determine the point of breach. Other reconnaissance assets, such as the Brigade Recon Troop, UAVs, scout helicopters, and even COLTs may be available, depending on the priority of the mission in the overall scheme of operations.

Even as reconnaissance is being deployed, the commander and staff must immediately start planning for the breach in every offensive course of action development. It is safe to assume that our forces will be under both indirect and direct fire since the enemy uses obstacles to channel and separate forces just as we do. With speed at the breach in mind, the TF or BCT breach force must maneuver toward the front of the formation. If a breach is imminent, their best location is second in the order of march. Both *FM 17-15, The Tank Platoon,* and *FM 71-2* state that the lead tank should be the roller tank since it is designed to detect the minefield in a breach. This technique may be effective if units cannot visually identify mines or locate them with the tank's thermal sights. It may also work in finding enemy FASCAM, but it is important to realize, with the density of both conventional and situational minefields, that the roller tank may be well past the leading edge of the minefield before the roller hits a mine. I've never observed this technique to be effective, since the roller tank is a massive, lumbering beast ill-suited to lead a combat formation. Instead, the lead tanks must be killers on point that clear the immediate area for the formation and can fix enemy vehicles with direct fire while the plows and rollers move behind terrain or at a safe distance into their breach positions.

A successful AVLM launch and blast clears the path for a 3-67 Armor M1A1 west of Drinkwater Lake at the NTC.

Within the tank company, the MTOE distributes one plow to each platoon, with a roller on another tank in the company. Since the tank platoon rarely maneuvers on its own, and never in the breach, this serious violation of unity of command is usually corrected through task organization in the field (much to the hand receipt holder's resentment). The most effective breach forces I have seen have had all of the reduction assets massed in one platoon. In a few missions, we attempted to attach this platoon under an engineer company commander. However, this led to disastrous results every time because of the loss of guns in the battle. The tanks were treated as engineer vehicles only and the company's killing capability was reduced by 1/3.

To be successful, the maneuver chain of command must remain intact. This fact is just as true for the engineer companies and platoons fighting the mission. The maneuver commander commands the breach force, but within that force, the engineer commander may control that reduction element. This allows the maneuver commander to concentrate on the security element and the critical task of controlling direct fire at the breach site.

Contrary to the beliefs of many soldiers I've worked with, the plow does not necessarily slow a tank during movement. The main planning consideration for plow tanks is to keep them away from wadis, streambeds, non-MLC bridges, and other restricted terrain. The tank is much longer with a plow attached and cannot drive through steeper dips. If the plow does dig in, crews must dig the mud and dirt off the plow immediately. The added weight routinely causes seals to burst on the suspension in the front of the tank.

The Equipment

The equipment available for the breach is not limited to the tankers' and the engineers' AVLBs, AVLMs, MICLICs, Bangalores, and grappling hooks. A successful breach is a combined effort that includes the engineers; the indirect, counter-battery, and smoke missions of the field artillery and mortars; aviation fires; infantry support; and sometimes even the smoke of the Chemical Corps. All of these systems are excellent in their own way, but for the purpose of this article, I'll concentrate on the M1 plows and rollers and methods of integrating them with the engineers.

Armor manuals are fairly weak on breach missions. Three methods discussed in *FM 71-2* are a plow/roller combination, using the M88 with its blade down, and just driving through. *FM 17-15* still teaches the disastrous method of staggering plow tanks to create wider lanes. This inevitably leads to a live mine in the spoil exploding on the second tank. That manual also still instructs tank platoon leaders to mark lanes with CLAMMS — fortunately, I believe most of these were turned in after proving useless. Instead, the most effective method of tank obstacle breaching is the mine plow. The plow digs below mines and then uses spoil to push them to the sides. Any vehicle that stays within the track of the tank is safe from mines.

The tank roller may have been good in intent, but is generally loathed in the armor community as more trouble than it is worth. Several tank manuals suggest

leading an attack with your roller tank to find the leading edge of the minefield. However, anyone who has maneuvered with them quickly understands that an attack with a roller point man would have all the momentum of a lethargic snail. The roller was designed to be carried to the battlefield on a lowboy trailer, and the receiving tank would already have the mounting kit secured to the front slope. The crew only installs the rollers on the tank in the attack position before crossing the LD, maneuvers toward the breach, drives through as the proof tank, and drops them on the far side to be retrieved later. In this mission, and this mission only, the roller is effective, but prolonged use of the roller can severely damage a tank. During one field problem, my wingman had to keep a roller on his tank for the entire month because of lack of support to transport them. It took about nine months to replace or repair all the shocks and seals of the suspension that were destroyed by the extra weight. The other division at that post never even used their rollers; I never saw them moved from the far corners of their motor pools. In January 1996, I got a late Saturday night phone call to do some quick repairs on three of our four rollers and get them on a plane at Robert Gray AAF Sunday morning to go to Bosnia. Of course, I didn't shed any tears when that plane left.

There is also a major Class IX problem with both of these systems. Neither system is reportable, so we could order all the parts 02, non-deadline. Even with this priority, the average plow part expected ship date (ESD) was about nine months, and about a year for the roller. Without being reportable, these systems lose the visibility they need to be fixed properly. Currently, crews cannot fix deadline systems; therefore they can't train on them. After only a short time, no one is familiar with them, and then they are just ignored. Not even the item managers could help us get these parts faster because the lack of emphasis on these vital tools.

During most heavy task force operations, engineers I've worked with have believed that the Holy Grail of breaching is the MICLIC/AVLM. Although not an armor system, it is a tool we, and our engineers, worked with quite a bit. The prevailing belief in armor when we saw the MICLIC or AVLM getting ready to go toward the point of breach was simply, "Get our plows ready, the MICLIC won't work." Even engineer AARs from Desert Storm contained the following conclusions: *"Units place an overreliance on the MICLICs as the answer to all their breaching problems. This was due to the ignorance of threat mine capabilities, poor MICLIC training at home station, and the general lack of an effective training device or training strategy." "The MICLIC system suffered from several serious shortcomings. During test firings, the system suffered a 50% failure rate."* Even when the MICLIC successfully fires, it can only clear a 100-meter long path in the obstacle. This is excellent for smaller obstacles, but in many breaching operations, the obstacle is very deep. *FM 90-13-1* also acknowledges that the MICLIC has a "skip zone" where mines are left untouched, and deeply buried mines, non-pressure fuze mines, and overpressure-resistant mines prove very resilient against the MICLIC. A major advantage of the tank-mounted systems is that they can keep going through the obstacle without the lengthy firing process. Knowing that engineers cannot accomplish the breach alone, it is essential that they work together with the tankers.

Techniques

The methods of obstacle reduction I'll discuss here are simply the combination of a MICLIC and plow tank and then briefly the plow tank and a roller tank breaching a wire and mine obstacle. The combination of reduction assets and methods to use them are only limited by your imagination, but these are the two methods I have used the most. Regardless of the method, all breaches must be the task force or combat team's main effort. The attack hinges on this mission, and therefore every asset, including the most ammunition, close air support, priority of fires, Firefinder radar, and smoke platoons must be concentrated at this decisive point. With them, the commander must build the breach fundamentals of suppress, obscure, secure, and reduce (SOSR). To accomplish this, the breaching unit is organized into the support, breach, and assault forces. When forming these forces, it is critical to retain unit integrity and the existing chain of command. Success hinges on keeping each platoon or company intact under its own maneuver commander, with the engineer commander as a right-hand man. When the teams are set and putting fire on the enemy, the support force leader must call for the indirect fires and smoke missions. His mission requires a good view of the battlefield, and he is usually the best to have the overall view and control these fires. Both artillery and the armor battalion's mortars must be used to the fullest for fires and smoke missions. But when these fail, the tanks can also fire volleys of HEAT rounds in front of enemy positions to create obscuration from the dirt. When the effects of all these systems is beginning to peak, then and only then, the force has set the conditions for commitment of the breach force. Whatever the method, the end state must always be the same. The maneuver force must get through the breach quickly to continue the assault and kill the enemy.

After setting the conditions for the breach through SOSR, most engineers I've been around have preferred moving the plow tank into position 100 meters before the obstacle with the MICLIC directly behind. This technique provides some cover for the MICLIC crew or AVLM while they sit exposed in front of the enemy for the minutes it takes to raise, lock, fire, and detonate the charge. A very well-trained tank crew may also be able to set the engineers up for success on the MICLIC launch by halting at the correct stand-off distance for launch and set perpendicular to the obstacle. Immediately after the explosion, the tank is then in position to start plowing from his position and go through the obstacle while the enemy may still be disorganized after the large blast. During the time the MICLIC crew is getting set, the tank crew can drop the plow and verify that it is locked down. Once the rocket is fired, the breach moves very quickly.

From the tanker's perspective, this technique does work, but is filled with actions that are setting up the breach force for failure. It is obvious that the attacker must place a huge volume of fire on the defender during the entire mission. However, with the plow tank directly in front of the breach, where our own obscuration smoke and, hopefully, burning enemy vehicles may obscure his view, his main gun is effectively taken out of the fight. When the enemy does spot the tank and MICLIC at the point of breach, they now have a much larger (two vehicles end to end) target to aim at for the several minutes that they sit in a known fire sack. This is when everyone finds out if the suppressive fire was effective or not. In this time, the enemy forces can destroy the attacker's best tools for getting through the breach and deny the commander his best place to put in the lane. Even if they are successful, and the plow tank crew survives the enemy fire, they now have to face the fact that a 25-year-old vehicle is about to fire almost a ton of high explosives over their heads, using a system that has a misfire rate of about 50 percent. As soon as this warm and fuzzy time is over and the MICLIC successfully explodes to start the breach lane, the plow begins pushing through the blast area.

Because the MICLIC was the reduction asset, the plow is the proofing system. Immediately after the blast, the tank plow

begins moving through what is left of the wire and mines. The tank must go on a straight path because it cannot turn without risking damage to the plow tines. The turret should be traversed to the left so that any mine blast to the front does not damage the gun tube. If the turret is traversed to the right, the tank commander is set further back and would have problems seeing to the front and determining the far edge of the obstacle. Some crews also install a makeshift wire-cutting device in the center of the blades. This device allows them to cut and then push away the concertina, where it might otherwise get dragged before breaking. This won't stop the tank, but it could damage the plow by cutting the nylon lifting straps, and may get caught in the track.

Armor and engineer doctrine on plow employment represents the extremes of plow performance, while the best answer lies somewhere in between. Many of the armor/joint publications state that the crew can drop the plow as little as 10 meters in front of the obstacle and then plow up to 10 mph *(FM 71-2)*. The tank platoon ARTEP lists no standards. Engineer manuals bring the drop point back to 100 meters with a speed below 10 kph *(FM 20-32)*. (Bear in mind that the M1 speedometer is in kph.) Both specifications are right and both are wrong: the only way to be sure the depth setting and plow speed is effective is to conduct a rehearsal. By plowing a practice lane in the area of operations similar to the soil conditions at the obstacle, the commander can quickly (after two or three practice lanes) determine the best depth and speed to dig out mines and produce sufficient spoil to push them to the sides. The blade drop point and speed can also be refined in a rehearsal. The best case is to drop and then begin movement to avoid damage to the tines by dropping while moving, although this is also dependent on local soils. After the plow creates a lane, the mine roller simply follows the exact path through the obstacle to detonate any remaining mines. He should travel at the same speed as the plow tank, with the gun tube again over to the left, and then exit the lane to the right in a hasty defensive position. In theory, the roller can withstand two mine hits per roller and continue to be effective as a proof. Regardless of the exact method, several systems must work together to breach, proof, and mark the lane.

The plow can dig down to 8, 10, or 12 inches, the depth to be set prior to the mission, based on the ground conditions (the softer the soil, the deeper the setting). Not only is this depth critical, but so is the installation of the plow's moldboards. These force the spoil farther to the sides of the tank and create a wider lane while preventing mines from falling back into the lane. Once the tank commander is sure that they have plowed beyond the far edge of the obstacle, the tank must briefly stop, back up, and raise the plow. This only takes a few seconds, and then the plow tank should always move off the lane and set in a suppressive fire position to the left of the breach lane. Because the plow control cables run through the driver's right vision block, it is safest to drive to the left so he can see where he is going while the gunner is free to traverse and look for targets.

Although the breach is now well established, it is not complete until it is marked. The MICLIC and path dug by the plow are very distinctive, so the immediately concern is to mark the exact entrance and exit. VS-17 panels are excellent markers at both ends. We used the red side on the right and orange on the left. The exit point is the most critical under fire, because many combat vehicles in training turn off too early and end up running right into the minefield. At night, filling plastic water bottles with chemical light fluid for markers can enhance the VS-17s. We used to use "tippy toms" to mark the left handrail of the lane because engineers can just throw them out as they move through, but they are usually not very useful when the path is dug. Any initial method that clearly marks the entrance, exit, and path of the breach is essential and must be continually improved (reducing the obstacle) for follow-on units. (See *FM 90-13-1,* App E)

When tank units conduct breaches without a MICLIC or AVLM, we train to do them with only a plow and roller. We still follow the basic tenets of breaching as the MICLIC/plow combination, but with this method the plow does the breaching and the roller does the proofing. Without the roller, tank units are forced to use a "Hollywood" tank through the obstacle first to proof the lane. It is a grim job, but if the tank doesn't hit a mine, then the lane is proofed. Regardless of which reduction/proofing combination the commander decides to use, the plowing portion is almost identical to the process previously listed for the MICLIC/plow combination. The only difference is how the plow tank begins its mission. When terrain allows, the plow tank is most effective if it can remain behind an intervisibility line while the conditions are set for the breach. The commander can talk to that TC to position him directly in front of his desired point of breach, so that when he orders the plow forward it simply and quickly (shock effect) drives straight to it. This is another point where the doctrine falls apart. The blade drop point and speed of the tank may seem simple, but have drastic effects on the quality of the lane.

Synopsis

In the heavy force breach, the maneuver commander has to synchronize every available battlefield operating system to set the conditions for a successful breach and continued attack. No one system, or even branch, is able to accomplish this mission without direct involvement and assistance by others. A major problem facing the combined arms team today is a lack of understanding of the common doctrine in *FM 90-13-1* on how to execute this mission. The primary soldiers in the breach are the tankers and engineers, but even our schools teach different methods of execution. Then, when we come together in the field to plan and execute the mission, the officers haggle over exactly what to do.

To alleviate this confusion, we need to develop more effective combined arms doctrine and tactics, techniques, and procedures on the breach. If we start by locking a bunch of tanker sergeants and captains in a room with their sapper counterparts, they may be able to find some common ground before the balloon goes up. With common doctrine, the tankers and engineers will complement each other very well in the combined arms breach, with reinforcement by every available battlefield operating system. Through combined TTP development, refinement, implementation, and training, we can set the conditions for a coordinated effort between all BOS elements on the battlefield. As individuals, or individual units, we can do many great things. Acting together as a cohesive team with common doctrine, we can accomplish anything, even an operation as demanding as the breach.

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